

REPORT

OF THE

EPIDEMIC CHOLERA,

AS IT APPEARED IN THE

TOWN'S HOSPITAL OF GLASGOW,

IN

FEBRUARY AND MARCH, 1832,

WITH CASES AND OBSERVATIONS.

By W. AUCHINCLOSS, M.D.,

SURGEON TO THE INSTITUTION, LECTURER ON PRACTICAL SURGERY,

SENIOR SURGEON TO THE ROYAL INFIRMARY, &c. &c.

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Taken from the 18th Number of the Glasgow Medical Journal.

THE Town's Hospital is situated on the north side of the river Clyde, from which it is separated by Clyde Street and an embankment, a distance of 144 feet. It consists of a front and a back building, between which there is a large court, or airing ground, 116 feet in breadth. The whole building occupies 6465 square yards.

In February, 1832, the Hospital contained considerably upwards of 400 inmates, although not fit for the proper accommodation of more than 320. These, for the most part, were old and infirm persons, many of them bed-ridden, and from 60 to 70 fatuous or insane. The latter occupied chiefly the cells, on the ground floor of the northern or back division of the building. These cells vary in size from seven to eleven feet square, being six in height, with a stone-arched ceiling. They contained either two or three beds, occasionally with two persons in each. None of them have any fire-places, but they open into a large gallery about ten feet wide, through the centre of which runs a flue for communicating heat. This gallery is aired by means of small gratings, situated opposite each cell door, and opening into the large court between the front and back buildings. Each cell has also a similar grating behind, which opens into another very small airing ground to the north, where the lunatics are allowed to take exercise.—These are the only means of ventilating the cells.

It may be further mentioned, that the floors of the cells are flagged with stone.—They are very damp, and this is much increased from the necessity of having them frequently washed, in consequence of the filthy and unclean habits of many of the inmates. In these apartments Cholera first made its appearance.

The first floor at the east end of this back building, immediately above the cells just mentioned, is appropriated for female lunatics. It consists of eleven cells, arranged in two rows, separated by a passage only three feet wide. Of these, seven are situated in front and four behind. A staircase passes up in the centre, opposite which there is one cell, three being on either side. The one row looks into the large airing ground in front, the other into the smaller airing ground behind. The latter are much more commodious than the former, there being generally three inmates in each, while the former are capable of containing each only one bed. With the exception of two of these behind, none of them have any means of being heated. They are flagged with stones, and otherwise fitted up in the same way as those on the ground floor. With regard to the front building, where comparatively few cases of cholera appeared during the epidemic, the wards in it are for the most part large and airy, having proper means for being heated and ventilated. But even this part of the Hospital was over-crowded, most of the beds having two occupants.

In addition to the front and back buildings, there is at the west end of the large square, a detached building two stories high, and about forty feet in length. The ceilings are low, the ground floor is flagged in the same way as the cells, and was appropriated for lodging part of the idiots. The high ward has a wooden floor, and was occupied by the better sort of inmates. Each ward is capable of containing from twelve to fourteen beds. A week after the appearance of the disease, this house was converted into a cholera hospital.

It is perhaps of some consequence to mention, that the east end of the back building, is distant about 100 yards due west from the house in Goosedubbs, where cholera first appeared in Glasgow.

On the morning of the 22d February, at eight o'clock, two men, named John Brown and Wm. Scott, were found cold and pulseless, and, on inquiry, it was ascertained that they had vomited and purged a good deal during the preceding night, although quite in their usual health and walking about on the 21st. These two men occupied contiguous cells on the ground floor of the back building, in each of which there were three beds containing five patients. They were immediately removed to a small detached building one story high, previously used as a wright shop, but which had been fitted up for the reception of patients, in the event of cholera making its appearance. The man Brown died on the following day, never having rallied from the state of prostration in which he was discovered. Scott, after a severe attack

of the disease, with violent spasms in the legs, arms, and abdomen, recovered, and was dismissed cured, on the 29th February. Another man, named John Campbell, who occupied the same cell with Scott, but who lay in a different bed, having also been vomiting and purging, was removed at the same time to the cholera ward. In this case the disease was not fairly developed, the chief symptom being excessive irritability of stomach, without any tendency to purge. This continued for six or seven days, during which the pulse gradually became weaker, and was frequently nearly imperceptible at the wrist. Although this man never fell into the stage of collapse, yet as he had many of the symptoms of cholera, particularly the characteristic expression of countenance and the altered tone of voice, it was reported a case of that disease. His complaints were greatly mitigated, and ultimately removed, by powerful counter-irritation applied to the abdomen, with occasional drachm doses of the bi-carbonate of soda.

In the same cell a boy, Henderson, had similar symptoms, and was removed at the same time. The disease in this case having been taken at the commencement, was checked in a day or two, and he rapidly recovered. In the forenoon of the same day, a girl, Smellie, who lodged immediately above these cells, on the same floor with the female lunatics, and who was accustomed to assist the keeper in taking in victuals to the inmates, was seized with the premonitory symptoms of cholera. She was accordingly removed, and recovered in a few days. Jane Pringle, a lunatic, residing in the upper cells already described, was also seized on the 22d with symptoms similar to the other patients. She was accordingly removed to the Hospital. The disease in this case, was confined to the premonitory stage. She recovered in the course of two days. It was now deemed prudent to have the whole occupants of those cells, where the disease broke out, removed to two small empty rooms, used for holding lumber, in the garrets of the front building.

The same evening that the disease had appeared in the back building, a man named R. M'Nair, aged 65, an idiot, but living in the garrets of the front building, was seized with well marked symptoms of cholera, having had diarrhœa for two days previously. This person was immediately removed to the Hospital, and died on the following morning. Four other individuals in the same ward, which contained twenty-two persons in all, were subsequently seized. But it is proper to state, that the whole of them lay at the very opposite end of the ward, no person in the immediate vicinity of M'Nair, nor even the man who slept with him, being affected.

In the ward immediately below the above-mentioned, Martha Love, aged 67, was seized with the disease, on Friday morning, the 24th. She died the same evening. This woman, it is said, had assisted on the preceding day, in wringing, as it is vulgarly styled, though it is certain she had not taken any part in washing, some of the clothes which had been used in the Cholera Hospital. The ward in which she resided contained 20 persons, yet out of these only two were affected, and they were taken from the opposite end of the ward. The woman who slept in the same bed with Love, although 65 years of age, and otherwise very infirm, still remains in her usual health.

Other individuals in different wards of the front building, were subsequently affected, but during the whole course of the epidemic, the greater proportion of those attacked had inhabited the back building. Free intercourse, however, could not be prevented from being occasionally kept up, between the inmates of the front and back buildings, by their assembling in the large airing ground during the most part of the day, and more particularly by the nurses and other inmates going to the storehouse for the necessary provisions. The disease continued to prevail in the Hospital, from the 22d February, till the 9th of March, during which time new cases occurred every day. After this date it disappeared until the 16th March, when one case occurred in the front building, and on the 17th one from the back building, when the complaint finally subsided. The total number of Cases amounted to 64.

Several opinions have been entertained as to the introduction of the disease into the Hospital.

1st. The two men first affected, namely, John Brown and Robert M'Nair, were in the habit of being frequently out of the Hospital, for the purpose of procuring sandstones, to be converted by the idiots into sand for the use of the establishment. It has been supposed, therefore, that the disease may have been brought in by one or both of these persons, they having accidentally come in contact with cholera patients, or others who had been visiting the sick; or having perhaps frequented, for a short time, those parts of the city where the disease prevailed, and in this way communicated the complaint to the other inmates of the Hospital. It may be mentioned, however, that Brown, the first affected, was actually not out of the house for twelve days, and M'Nair not for at least four days, previous to the 22d. Besides, from what is known of the different buildings going on in the city, it is not at all likely that the individuals in question, could have frequented any infected locality in search of the article wanted—

nothing of the kind being in such neighbourhoods; but even on the supposition that they were themselves affected in this way, the disease would have been confined to them, and would not have spread to the other inhabitants, living in the untainted atmosphere of the Hospital. This supposition, therefore, it is evident, cannot satisfactorily explain the appearance of the disease.

2d. At the weekly committee, which is held every Friday, a considerable number of out-door paupers are admitted into the lobby of the Hospital, for the purpose of receiving their allowance. These people coming from various parts of the city, it has been imagined that the disease might perhaps be introduced in this manner. As none of these persons, however, were allowed to go near to the cells, where the disease first broke out, nor to go much into the large airing ground, by which alone they could come into contact with the inmates, it is clear that this supposition is not sufficient to explain its occurrence.

3d. An unusual number of vagrants had been admitted into the Hospital, by orders from the sitting magistrate at the Police Office, within the six weeks preceding the breaking out of the disease. It has, in consequence, been supposed that many of these individuals coming from infected districts, or having been in contact with cholera patients, might, in this manner have introduced the disease. It is sufficient to remark, that of those admitted, three only were affected, and that they were well, and not out of the House for the preceding three weeks. This supposition, also, must fall to the ground.

4th. A few days before the appearance of the disease, a woman having died suddenly in the High Street, supposed to be from cholera, her body was brought to the Hospital, where it remained for two days previous to interment. By some, this has been supposed a very likely way of explaining the cause of the epidemic. Were I disposed, however, to argue the point, which I need scarcely do, but trust to the facts to be adduced in the sequel to the contrary, I might merely say, that of all the suppositions entertained, this to me appears the most unlikely. It is quite uncertain that the woman died of cholera; none of those first affected, had any communication with the dead room:—and of those who handled the corpse, only one, a nurse, was at a later period affected, and her case can otherwise be satisfactorily explained. Not one of these hypotheses is at all sufficient, in my opinion, to account for the appearance of cholera in this Hospital.

On the supposition that the disease arose spontaneously, two methods of explaining the circumstance present themselves.

1st. There is situated at the west end of the front building a large dunghill. This is yearly rented by a farmer, whose duty it is to have the dung regularly cleaned out every second week, instead of which, it appears, he had allowed it to accumulate, at the particular time under consideration, for a much longer period. The straw from the cells of the lunatics, saturated with filth and moisture, is regularly mixed with the dung, and the surface being open and exposed to the direct rays of the sun, the effluvia or noxious vapours thence emitted, have been considered by some, sufficient to account for the breaking out of the pestilence. One thing favourable to this supposition is, that, with a very few exceptions, all the inmates of the Hospital pass and repass this situation frequently during the course of the day, the other half of the square, between the front and back buildings, being fenced off as a bleaching-green.

2d. The Hospital, being situated so very near the river, and surrounded as it is by several common sewers, is of course subject to occasional inundation, generally once, and sometimes twice, during the winter and spring seasons. At such times, the water always appears first in the low cells behind, these being fully more than a foot below the level of the front building. Sometimes the accumulation extends to the depth of several feet, and during the winter of 1830—31, it rose to within 9 inches of the height which it reached in the great flood of March, 1782, when the depth was 4 feet 2 inches. These frequent inundations tend to keep the lower cells always damp, and may be supposed also to give rise to constant exhalations from the ground, not only of the cells themselves, but from all the parts in the immediate neighbourhood. It is well known, that cholera has uniformly prevailed most extensively among the inmates of low damp habitations, while those living in the upper stories, even of the same buildings, have either altogether escaped, or have been affected in a much smaller proportion. These causes, particularly when taken in connexion with the great crowding of the Hospital, appear to me sufficient to account for the spontaneous origin of cholera, without at all having recourse to any specific contagion.

So much, then, for the first breaking out of the disease in the Hospital. As to the mode of its spreading afterwards, since its origin, I believe, was spontaneous and not imported, it may be presumed, that all the inmates being equally exposed to the same causes, were alike liable to be attacked; but it is quite certain that circumstances occurred favourable to the doctrine of its contagious character, while, on the other hand, many others were observed which cannot be at all explained on

this supposition. Some of the former have already been adverted to; such, for example, as the disease attacking a number of the lunatics in succession, and this too for a time subsequent to the whole being removed from the infected locality. It is to be recollected, however, that they had all breathed the tainted atmosphere, for some days before their removal. Five of the nurses, who waited upon the sick, were also affected, of whom four died. Yet it is proper to mention, that three of these were inmates of the Hospital, consequently had been, for some time, exposed to all the local causes, which of themselves were sufficient to produce the complaint. Besides, they were well known to be peculiarly predisposed from previous intemperate habits, &c. The other two nurses came from districts of the city, where the disease had already shown itself. They, too, were particularly predisposed, from intemperance, previous want of proper nourishment, and other circumstances. These facts, therefore, together with the great bodily fatigue, and want of rest, which these women had endured, from their constant attendance on the numerous sick, are sufficient, in my opinion, to occasion cholera, without calling in the aid of contagion.

I may also remark, that the place to which the patients were removed, for the first few days after the appearance of the disease, was a small ward, formerly mentioned, on a level with the ground. It had an earthen floor, was consequently very damp, and in point of ventilation exceedingly deficient. These causes gave rise, in several of the nurses, to diarrhoea and slight cramps in the limbs, and one of the medical assistants had a severe attack of cynanche tonsillaris apparently induced in the same manner. I conceive it therefore quite unnecessary to have recourse to contagion, to explain the attack of the nurses, while so many other circumstances existed, quite sufficient of themselves to produce the affection.

As to the facts militating against the doctrine of this disease being contagious, I may mention, that the whole of the inmates were similarly exposed to all the local causes alluded to—that cases appeared in different parts of the building nearly at the same time—and that many were particularly predisposed, from old age, debility, long continued chronic disease, and other circumstances, to the attack of any epidemic malady. An unusual number of bowel complaints, a powerful predisposing cause of cholera, prevailed in the Hospital, during the months of February and March. In repeated instances, persons were exposed in the most direct manner, to the influence of any contagious poison that might exist, nevertheless they have remained unaffected.

This happened to an idiot very far advanced in years, who slept in the same bed with John Brown, the subject of the first fatal case; also to an old infirm man, who slept along with Robert M'Nair, the second fatal case; and likewise to a very infirm aged woman, who slept with Martha Love; as well as to another individual, who lay along with William Scott, the second person affected with the disease. Other examples of the same kind occurred, which it is perhaps unnecessary to mention;—such as persons sleeping in the same cell with those affected, and being in constant communication with them, and yet continuing quite well. Besides, in some of the wards, only one or two persons were attacked, which would scarcely have been the case had the disease been contagious, seeing that all the rest, amounting frequently to from 12 to 20, were also exposed in the same direct manner.* In addition to these facts it may be added, that all the patients were carried, from their respective wards to the Cholera Hospital, in the arms or on the back of one of the inmates. Though thus freely and repeatedly exposed in the most direct way possible, this person has never taken the complaint. Other two men, exposed in the same manner, though to a less extent, have also remained well. All the medical attendants, nine in number, were hourly exposed, yet none have, in the slightest degree, been affected. Is it possible, I would ask, that so many could have escaped had the disease been contagious? or can it be explained, agreeably to the laws of contagion, that, in two wards, each containing 22 persons, and measuring 46 feet by 15 in breadth, no individuals in the contiguous beds should be affected, while the disease appeared at the very opposite end of both, as happened in the case of Martha Love and Robert M'Nair?

It is perhaps necessary to allude to the opinion which is very generally entertained by the public, and even by some medical men, that the disease may be caught by the effluvia emanating from the dead body, even after it has been laid in the coffin, and thus nailed down. This is the most absurd and preposterous idea of any entertained regarding contagion,

* These *facts* I consider to be perfectly valid objections to the doctrine that cholera is propagated by a contagious poison, for they are exactly of the same kind as those continually brought forward to prove that opinion. If one party assert as proofs of contagion, that individuals inhabiting the same apartment or the same bed are seized one after another with the disease, surely the opposite party must be allowed to bring forward, as proofs against that doctrine, the fact of a great many being exposed in this very way again and again, and yet remaining well. The proofs of this kind which occurred in the Town's Hospital were innumerable.

and shows a degree of credulity which I should suppose does not attach to *many* of the profession. If danger could result from the dead body, then the medical gentlemen, who were thus exposed in performing the necessary post mortem examinations, sometimes I may say for hours in succession, would scarcely have escaped, and yet not one has been affected. Four individuals, employed in making the proper arrangements for the interments, and who were thus similarly exposed to contact with the dead body, have also remained well. The circumstance of the disease disappearing, and breaking out again at the end of seven days, and then only two cases occurring, and these from different wards in the front and back building, is also hostile to the opinion of its being a contagious disorder.

I have thus given, I trust, an impartial statement of the introduction and mode of propagation of the disease in the Town's Hospital. The facts as they occurred, incline me certainly to favour the doctrine of its non-contagious nature, but I may perhaps appear blameable in the estimation of some, for having expressed myself rather too strongly on that side of the question. In doing so, however, I have not said more than facts warrant; but as this is a point to be decided by experience alone, I shall ever hold myself open to conviction. The common fever of this climate, usually termed typhus, is looked upon by many as a contagious disease, and is generally considered as decidedly more so than cholera. I have, however, for many years past been of a different opinion, and believe this disease also to be non-contagious. In this belief, I am born out by many facts on record, as well as numerous others, which have occurred under my own personal observation. I am perfectly aware that the doctrine of non-contagion is unpopular with many medical men, and more particularly with the public at large. The subject has, for many reasons, both civil and political, engaged much of the attention of the profession, within the last 25 years; and I speak no more than the truth in asserting, that the evidence is fully as strong, and the authorities as numerous and respectable, on the one side as they are on the other. The same arguments, and the same facts usually adduced to prove typhus contagious, are now brought forward to show that cholera is propagated in the same manner; and as this article may happen to be perused by others besides medical readers, it may perhaps not be improper to give a brief outline of the arguments, which are used on both sides of the question.

It may be remarked that the terms contagion and infection

have, by some authors, different meanings attached to them, though, by the medical public, I believe, they are employed as synonymous expressions, and of course applied indiscriminately. They denote the communication of a disease, either by absolute contact with the person affected, or by the poisonous matter emitted from his body, being conveyed through the medium of the atmosphere, and applied to the skin, or received into the stomach or lungs of a healthy person. Thus, for example, a person coming near another labouring under small pox, measles, scarlet fever, or any of the other reputed contagious diseases, provided he has not had the disease previously, will be affected either in the one way or the other.

Those who believe in the doctrine of contagion, to the full extent, consider that the plague, yellow fever, typhus, cholera, &c. are produced by a poison generated in the body of the person affected, and from him communicated to another, either by actual contact, through the medium of the air, or by means of clothes, &c. impregnated with the virus;—In short, that the poison in question, or rather animal effluvium, is a product of the blood, similar to the other secretions of the body, as the saliva, bile, urine, &c. The non-contagionists, on the other hand, conceive that fever, and of course the other diseases mentioned, arises from a peculiar state or constitution of the atmosphere, which by them, is styled *febrific*, or, as applied to cholera, *choleric*. This particular state or quality of the air is certainly unknown, yet it is generally supposed to arise from the decomposition of animal, and more particularly, vegetable matter, conjoined with moisture and heat. Hence noxious effluvia are emitted, which act prejudicially upon the human body, when exposed and otherwise susceptible of being affected.* The diseases thus occasioned are said to be *epidemic*, or *endemic*—not contagious. Perhaps a better term would be *atmospheric*. Cholera, then, is of this description. Did these diseases possess the power of being communicated from one person to another by contagion, when any one of them broke out in a house or neighbourhood, it would be difficult, nay almost impossible, to eradicate it, until every person had been seized with the malady. Hence we might expect to have always a great number of cases in the same house, the disease spreading from one to another of the inmates, in consequence of their free communication with one another. But what is the

* We have an illustration of noxious vapours, emitted from damp, marshy soils, producing disease, in the case of intermittent and remittent fevers, which, in their progress, occasionally assume the continued or nervous type, and *vice versa*.

fact? Instead of a great number being affected in any given house, we generally meet with one solitary instance, under which circumstance the disease is easily checked. Even at the present moment we observe solitary cases of cholera, springing up, as typhus often does, in different streets of the town, and no spreading of the disease taking place; a clear proof that it is not propagated, like small pox, measles, &c. by a contagious animal poison. But even, as sometimes happens, when several of a family, or a great number in the same neighbourhood, are successively attacked, it is readily explained on the principle, that all those so affected have been equally exposed to the same original cause—namely, the tainted atmosphere.

When a person affected with fever, for example, or cholera, is removed from the place where he first took ill to another part at a distance, where the atmosphere is pure, the disease seldom or never spreads. This is proved by innumerable facts on record. But if, as occasionally happens, the disease should spread to a few in this latter situation, this is no positive proof of its contagious nature, but seems rather to depend on the accidental occurrence of the particular condition of the atmosphere, in both places at the same time, as it is well known frequently to extend over large districts of a country. No doubt, the contrary explanation of the circumstance is exceedingly plausible at first sight, viz., that the disease has been propagated from person to person by actual contact, but cases of this description recorded are too few and ill authenticated, to warrant the inference; so that it can be more satisfactorily accounted for, on the belief of the prevalence of an epidemic state of the atmosphere, in different parts of the country, between which there is free communication, than to the conveyance of any specific contagion.

Medical men, in the exercise of their profession, are often and freely exposed to the effluvia arising from persons labouring under pestilential diseases, and yet there are very few instances, comparatively speaking, in which they have been known to take the disease. The believers in contagion allege that such persons escape, either in consequence of their want of fear, which for the time renders them insusceptible of the contagion, or, from frequency of exposure, hardening them against its influence. On the contrary, the other party say that the occurrence is so very common, that it cannot arise from any other circumstance, than the non-contagious nature of the disease itself. When medical men, therefore, as well as nurses and other attendants upon the sick, suffer, the attack must be ascribed to their having breathed the tainted

atmosphere, for a sufficient length of time to excite the disease; their very general exemption being accounted for, by the fact of their remaining for as short a time as possible, in the low, damp, and ill ventilated situations, where the disease prevails. Free ventilation is considered by the contagionists a means of subduing the virulence of the poison, which, it is averred, requires to be highly concentrated, before it can exert its worst effects upon the spectators; and yet these same contagionists believe, that a person may convey the poisonous matter on his clothes for miles, exposed to wind and rain, and still have the power of communicating the infection to a third person, and subsequently to a whole neighbourhood, he himself remaining all the while in good health. This is the manner, then, in which the contagionists explain the appearance of cholera in different parts of the country.

It is to be recollected, also, that typhus, cholera, &c., very often arise, in situations where no possible communication by contagion can be traced. This is too much the case to be for a moment doubted. Contagionists themselves afford sufficient evidence to prove it. Many medical men have, therefore, embraced the opinion that the disease may have a double origin, or, in other words, that it may arise spontaneously, and afterwards spread by a specific contagion. In refutation of this hypothesis the language of Dr. Bancroft is quite explicit. I may remark that this author is not only one of the most philosophical writers, but also one of the most decided supporters of contagion, in reference to typhus, that has perhaps ever written on the subject.—“To represent a disease,” says he, “which is notoriously contagious, and propagated by contagion, as capable of being produced by other, and those very different, means, is to multiply causes unnecessarily, and, therefore, unjustifiably; and it moreover destroys the natural and just influence of causes upon their effects, by making the same disease result from very dissimilar causes.” Further on he observes, that “were it possible for typhus thus frequently and easily to originate without contagion, and at the same time acquire and multiply itself by a contagious quality, who could ever hope to escape the disease?” Again he adds, “I would as soon believe, in the exploded doctrine of equivocal generation, as in this.” And in another place, alluding to the facts adduced, “these render it absolutely incredible that any inanimate matters, even those secreted by living animals in disease, should by any natural or artificial decomposition, be enabled, like living animals and vegetables, to assimilate

other matters to their own nature, and then multiply and perpetuate disease, except when they have been produced by contagion.”* Now it is certain, that the non-contagionists speak in as strong language on this point, as their opponents. They cannot believe, any more than Dr. Bancroft, that a disease may first arise spontaneously, and then spread by contagion. Those who hold this doctrine, therefore, are disowned equally by both parties.

I hold it to be undoubted then, that typhus, cholera, and the other epidemic diseases alluded to, manifest, at least sometimes, no contagious character whatever, and if this takes place even in one case, it may take place in all. In regard to typhus, ample evidence is on record to this effect. Without at all adverting to what the contagionists admit on this point, I may merely refer to the great mass of testimony laid before the select committee of the House of Commons some years ago, in reference to the sanitary laws;—testimony, sworn to by Physicians and others, in the first hospital practice in the empire. In the large hospitals of London, for example, it is customary to mix the fever cases indiscriminately with the others, yet nothing ever occurred to show the disease to be contagious. I have had ample opportunities of verifying the same in my own practice, both in regard to typhus, and latterly cholera. Many cases were admitted into the cholera ward, by way of precaution, without any of the other symptoms but purging, and of course were not returned to the Board of Health as cases of that disease; yet these persons did not take the complaint afterwards, although lying in beds immediately contiguous to real cases of cholera. I speak in the knowledge of many of my brethren, who differ from me in opinion, on this point.

To such an extreme length has the doctrine of contagion been carried by some, that they verily believe the contagious matter to be received into articles of dress, and thus transmitted to others, by individuals who are not themselves affected. This shows to what an absurd extent the contagionists are disposed to carry their views; and hence it is evident, that, having such latitude, they can find no difficulty in explaining any case of cholera, agreeably to their own opinions. Thus, when a person is attacked who has not, in the most distant manner, been exposed to contagion,—who has, perhaps, never been out of his own house for weeks, and had no communication, either directly or indirectly with the sick, instead of at once admitting the difficulty, and allowing that in this case the disease might

* Bancroft, pp. 198—502, 3.

have arisen spontaneously, the believer in contagion asserts quite the contrary. In short, he considers this to be the strongest possible proof of the truth of his doctrine, inasmuch as it shows that the disease is so highly contagious, and the matter so extremely subtle and tenacious, that persons are not safe from its direful influence, however far removed they may be from the sick!! Such assertions, I confess, are perfectly unanswerable.

Cholera, typhus, &c., do not possess any of the characteristics of contagious diseases, but appear to be governed by totally different, if not opposite, laws. All known contagious diseases observe a regular and determinate course, and are marked by symptoms, which unequivocally distinguish them from other diseases. Thus, small pox, measles, scarlet fever, and chicken pox, have each peculiar symptoms, which succeed each other in regular succession, and pursue an invariable and certain course through their different stages, independently of the treatment used. This is not the case, however, with epidemic or pestilential fevers. The symptoms of typhus or cholera, for example, do not succeed each other in regular succession, and they may be cut short in their progress by proper treatment. As to the operation of contagion, the period at which the morbid action is developed, is always determinate in contagious diseases. The reverse of this is observed in typhus, for we are told, by the contagionists themselves, that the infection may lie dormant during a period extending from one day to six months.*

Reputed contagious diseases affect a person only once during life. This, it is evident, is a wise and beneficent provision of the Great Author of creation, by which, to prevent them becoming universally prevalent. "It is the incapability of affecting the same person more than once, which, in general contagious diseases, sets boundaries to infection; and could alone, when no precautions are taken, prevent communities from being extinguished."† Neither typhus, cholera, nor any of the other diseases, then, possess this characteristic. Thus typhus is well known to attack the same person repeatedly. Now, it is sufficiently obvious, as is well expressed by a popular author, that if, in addition to this property, which it unquestionably possesses, it have the power of producing and propagating itself by a specific contagion, no human circumstance could prevent its spreading over the whole of mankind, nor could the disease ever disappear, so

* Bancroft and Haygarth are of opinion, that fever may make its appearance six months after the reception of the infectious matter.

† Maclean on Epidemics.

long as there was a single individual left on the face of the earth.

I now proceed to detail a few cases of Cholera, with the mode of treatment and the appearances on dissection.

Case 1st.—John Brown, aged 50, an idiot, rather stout, and previously healthy, admitted into the cholera hospital, at eight o'clock, on the morning of the 22d February. He was reported to have been rather unwell on the preceding evening, and to have vomited and purged repeatedly during the night. The discharges had the appearance of thin oat meal gruel. The following were the symptoms on admission:—Universal coldness, with clammy feeling of surface. Pulse imperceptible at the wrist. Expression of countenance contracted, with lividity of lips and tip of nose. Eyes sunk in sockets, like to a person far advanced in consumption. Answers questions put to him in monosyllables, “yes, or no,” but tone of voice seems perfectly gone; tongue moist, and cold at point, with brownish fur behind; insatiable thirst and constant craving for cold water; expresses no uneasiness, though very restless; abdomen rigid, but does not seem to experience pain on firm pressure; integuments of fingers shrunk, and with bluish tinge. *Stimulating draught every hour; sinapism to belly; frictions with turpentine and hartshorn to extremities.**

The frictions were used by means of four persons, who rubbed each one of the extremities, for nearly half an hour. After the sinapism was removed, a tin case shaped to the form of the belly, and filled with warm water was applied, and bottles filled with the same to the feet, and along the thighs and legs. This patient could scarcely be got to swallow any thing but cold water, which was no sooner taken in any quantity than it was immediately rejected by vomiting. By ten o'clock, the pulse was perceptible, though very small and feeble, and the surface was moderately warm. *Stimulating draught to be continued every hour, and heat to be kept up by means of tin pans filled with warm water.*

Mid-day.—The vomiting has returned every time he has swallowed any fluid. Has had one thin whitish stool. Hitherto no urine. *Draught, and to have enema with ℥i. of turpentine.*

* To avoid repetition, it may be stated, that the sinapism used in the hospital during the epidemic, was made of mustard, with turpentine, tincture of cayenne or hartshorn. The surface to which it had been applied was always rubbed with one of these fluids, in order to excite additional irritation and smarting. The stimulating draught was composed of half an ounce of whisky, or brandy, 5 drops of tincture of cayenne, a dram of aromatic tincture, or tincture of ginger, a dram of sweet spirit of nitre, and ten drops of sulphuric æther, with an ounce of warm water.

At 3 o'clock he had fairly relapsed into the cold stage, with the pulse imperceptible at the wrist. From this state he never rallied, notwithstanding frequent repetition of draught, application of irons previously immersed in boiling water along the spine, &c. He expired at half-past 9 o'clock, on the following morning, twenty-four and a half hours from admission. The eyes were red and suffused for several hours before death.

Inspection six hours after death.—*Head.*—Vessels on surface of brain much distended with very dark blood. Serous effusion, tinged red, between arachnoid and pia mater of right side. Medullary portion white and otherwise natural. Considerable effusion into ventricles, and at the base of the brain. Vessels of choroid plexus turgid with black blood.

Thorax.—Scarcely any fluid in pericardium. Right ventricle of heart greatly distended with very dark blood, also venæ cavæ, pulmonary arteries, and jugular veins. Lungs filled the chest completely, and were otherwise healthy. Par vagum and sympathetic nerves healthy.

Abdomen.—Omentum much more vascular than natural, and vessels filled with dark blood. Surface of intestines smeared over with a glutinous matter of a straw colour. This was particularly observable on the lesser intestines, the convolutions of which were slightly adherent. Vessels of peritoneal coat numerous, and of a dark colour. Stomach contained fully a pound of a dark fluid. Its pyloric orifice was very much contracted. The internal surface exhibited a reddish pulpy appearance. Considerable quantity of yellow foetid fluid in duodenum and jejunum and part of ileum. Mucous lining of smaller intestines studded with ecchymosed spots, which were more numerous and distinct towards the lower part. Ascending arch of colon very much distended with thin fæculent matter. Whole internal surface of this portion of bowel extremely vascular, and dark coloured. Sigmoid flexure contracted, and on cutting it open a quantity of gruelly fluid escaped. Mesenteric vessels loaded with black coloured blood. Liver natural. Gall bladder very much distended with bile of the colour of tar. Urinary bladder closely contracted.

The above was the first person attacked with the disease in the Town's Hospital. The frictions with turpentine and hartshorn had certainly a powerful effect in restoring the heat to the surface. He could not be made to swallow any medicine. The great restlessness was observable to the last. He had neither purging nor vomiting for eight hours previous to death.

Case 2d.—William Scott, aged 18, slender made, but

otherwise healthy. Admitted at the same time with J. Brown. They lay in contiguous cells. Had been affected with slight purging on the preceding day, and during the night was seized with vomiting. The following were the symptoms on admission:—No vomiting or purging since six o'clock in the morning. Expression of face much sharpened. Eyes sunk in their sockets, with blue areola. Voice altered, its tone being subdued. Extremities cold. Pulse perceptible at the wrist, but very small and compressible. Tongue with coating of white fur. Urgent thirst, and frequent screaming from spasms of legs, arms, and abdomen. The parietes of the abdomen feel particularly hard and rigid, and on applying the hands to the calves of the legs, the gastrocnemii muscles are felt to contract during fit of pain. Perfectly sensible, yet he is inattentive to surrounding objects, and appears inclined to sleep, which he would do but for the frequent recurrence of the cramps. Respiration nearly natural. *Sinapism to belly; stimulating draught; turpentine frictions to extremities.*

10 o'clock, A.M. The pulse is still very small and compressible, but there is a pleasant heat on the surface, and in other respects he appears a good deal revived. No stool. Has vomited once, owing to his having taken too great a draught of water gruel. The cramps continue, though much less frequent and severe. *Stimulating draught every hour.*

4 o'clock, P.M. Continued to improve up to the last hour; since then he is much more depressed in appearance. Pulse very feeble. Skin cold. Cramps more frequent. Has had two liquid ill-smelled stools of the colour of gruel, and has vomited several times. *Sinapism to belly; draught, and the heating apparatus afterwards; a large emollient clyster, with an ounce of turpentine, and in half an hour an opiate one.*

6 o'clock, P.M. Rather improved. Pulse a little stronger; Skin still inclined to be cold. Thirst as urgent. Since opiate clyster, has had two liquid stools of similar colour to the last. Has voided a small quantity of urine, for the first time. No return of vomiting. Cramps as before. *Calomel gr.iii., and opium, gr.i. every third hour. Repeat opiate clyster and continue other means.*

Remained much in the same state during the night, and seemed to dose a good deal. At 10 o'clock next morning, the pulse was scarcely to be felt at the wrist; the skin was again cold and clammy; and he was unable or indisposed to answer questions put to him. Pupils contracted. Respiration slower than natural. The vapour bath was re-applied with little or no effect. A piece of copper, immersed for a short time in boiling water, was afterwards applied to the surface

of the abdomen, in three or four different places, which produced very considerable pain, and had the effect of rousing him instantly, from the lethargic state in which he had previously lain. A stimulating injection was thrown into the rectum, composed of a table spoonful of turpentine, a quantity of beef tea, and half a drachm of laudanum. From this time he gradually improved. At 9 o'clock in the evening, the following is the report: Countenance flushed, and otherwise looks better. Voice with firmer tone. Pleasant heat over whole of surface. Pulse 88, compressible. Has had little or no return of cramps. One liquid bilious stool, and has voided urine twice. Tongue clean, and thirst abated. Has taken a little arrow root and wine, at two different times, with relish.

24th, 8 o'clock, A.M. No return of bad symptoms, and has passed a good night. Two thin dark coloured stools, and has voided a good deal of urine. Has only had 6 grains of calomel and 2 of opium, since 9 o'clock last night. *To have a powder composed of one drachm of rhubarb, gr.x. of bi-carb. of soda, and gr.iii. of ginger. This to be followed by a turpentine and castor oil clyster.*

25th, 8 o'clock. Three liquid stools of natural colour. Voids urine in moderate quantity. Pulse 80, of good strength. No complaint. Coffee and dry toast for breakfast, and beef tea for dinner. Continued to improve, and dismissed well on the 1st March.

The above was one of the most decided cases of spasmodic cholera, which appeared during the epidemic. The good effects of the application of the heated copper to the belly were instantaneous, and from that time he was observed to get gradually round, and the cramps to leave him. All the previous stimulants had only a temporary effect in rousing him. Discharge of urine is always a favourable symptom, and must be viewed as such in this case, yet it may be remarked that he fell again into the collapsed stage, on the succeeding morning.

This man had a slight return of vomiting and purging with cramps in legs, eight days after, for which he was again admitted. Of this attack, however, he got well in the course of two days, and is now in perfect health.

Case 3.—Catherine Higgins, aged 48, weak in mind, and slightly emaciated, though otherwise of a fair constitution. Admitted at 9 o'clock, on the morning of 23d February, in a state of collapse. This woman lay in one of the low cells, and had vomited and purged a good deal during the night, though she took supper and went to bed in apparent good health, at 8 o'clock the preceding evening. She had been in

the hospital during three weeks only, had previously led a vagrant life, and was much given to intemperance. On admission, the surface of the body was perfectly cold, hands rather shrunk and livid, the pulse very small and indistinct. Features contracted, tongue foul, eye sunk, voice natural. The vomiting returned at intervals, although not to any great extent, and appeared to be composed chiefly of the remains of her supper. A mustard emetic was immediately given, which operated very freely. Half an hour afterwards she had a stimulant draught. The hot air bath was employed and continued for half an hour, but without producing any permanent effect. The stimulating draught was repeated every hour, and friction to the legs and arms, with aqua ammoniæ and turpentine, assiduously and most perseveringly employed. Sinapisms were likewise applied over the abdomen and along the course of spine, and a stimulating enema, with one ounce of castor oil, exhibited.

Mid-day.—Enema immediately rejected without any feculent discharge. No appearance of reaction. Countenance still much depressed. Eye deeply sunk in socket, with distinct bluish areola. Pulsation at the wrist imperceptible—that of carotids nearly so. Skin of hands and fingers shrivelled. Lower extremities cramped and very cold. *Stimulating draught to be continued every hour. Sinapisms to calves of legs, and also along spine. Tin cases filled with hot water, to be applied to different parts of the body.*

2 o'clock, P.M.—Gradually sinking. Pulse imperceptible. Tip of tongue cold. Conjunctiva slightly injected. Quite sensible, and voice not much altered. *Enema of beef-tea with one drachm of laudanum.*

6 o'clock, P.M.—Still sinking. Skin cold and clammy. Tongue dry and cold. An enema, with half an ounce of turpentine, two ounces of beef-tea, and a little tincture of capsicum, was now given, and retained. The hot-air bath was re-applied under which she remained for nearly an hour, when, for the first time since admission, the body became slightly warm, the pulse more perceptible at the wrist, and the skin soft and covered with a pleasant moisture. She was ordered one drachm sulphuric ether, with three drachms of spirit of nitre. This was repeated after an hour, and by nine o'clock reaction appeared to be fairly established.—She had a scanty feculent stool, and voided about a gill of urine, the first since admission. *Continue the draughts, and to have beef tea with a little whisky for drink.*

In a few hours she became very restless, and appeared to be again sinking, notwithstanding the exhibition of stimulants

in considerable quantity, with the external application of heat. This treatment was continued during the night, but towards morning a relapse had again taken place.

24th, 9 o'clock, A.M.—In every respect worse, and now decidedly sinking. Extremely restless, and frequently screams as if from pain of cramps. No pulse at the wrist. Tongue black in centre, with red edges. Eye-ball and cornea slightly glazed. Surface moderately warm. No stool nor urine since 11 o'clock last night. A plate of copper heated by means of boiling water, was now applied to the surface of the abdomen, by which great pain, with slight vesication, was produced.

11 o'clock, A.M.—The heated copper has been re-applied, as also the actual cautery along the course of the spine, with little or no effect. At present very restless. Respiration laborious, mouth open, corneæ hazy, and otherwise slightly comatose. Pulse at the wrist perceptible, but very feeble. Surface colder than natural. *Continue draughts and heat to the body. Head to be shaved.*

4 o'clock, P.M.—To appearance fast sinking. Pulse again imperceptible both at the wrist and along the course of carotids. Skin very cold. Pupils firmly contracted, and insensible to light. Neither stool nor urine. Tongue black. Respiration very laborious, with rattle of throat.

Expired at half-past eleven—thirty-eight hours from the time of admission.

In this case it appears very evident that the means used, during the first twelve hours, had the effect of rousing the system, and removing almost completely the symptoms of cholera. She got into a state of complete reaction, fell again partially into the stage of collapse, revived a second time, and at last died from well marked symptoms of oppressed brain, having lain in a state of coma for some hours before death. Unfortunately, the notes of the *post mortem* appearances in this case have gone amissing, and cannot be found; but the brain exhibited unusual vascularity, and there was effusion under the tunica arachnoidea, and into both lateral ventricles. The appearances in the chest and abdomen were similar to the other cases, and there was abundance of bilious looking fluid in the small intestines.

Case 4.—Donald Gillespie, aged 70.—Delicate and otherwise very infirm—admitted at 8 o'clock, on the morning of the 3d March. Had gone to bed in his usual health on the preceding evening, though troubled with slight purging during the day. Three times up at stool in the course of the night, and about 5 o'clock seized with vomiting, accompanied by abdominal pains and cramps of extremities,

Face sharpened. Lips livid. Eyes sunk deep in sockets, and surrounded by a blue circle. Tone of voice gone. Pulseless at wrist—and cold and clammy all over. Tongue moist, but perfectly cold.—Respiration rather oppressed. Discharges of the colour and consistence of meal sharings.—Hands and fingers shrivelled and bluish.

This person died at 10 o'clock the same evening, never having rallied from the state of depression in which he was admitted. The usual stimulants, external and internal, were used without effect. In this case the skin exhibited more of the blue colour, than any which occurred during the epidemic.

Inspection 12 hours after death. Head.—Congestion of vessels of dura matter. Considerable effusion under arachnoid tunic covering both hemispheres, with thickening of that membrane. Vessels on surface of brain greatly engorged with dark blood. Cortical substance unusually pale externally, but on making a section, black blood oozed out. Large quantity of serum effused into lateral ventricles and at base of brain. Several hydatids in substance of choroid plexus, but little or no turgidity of its vessels. Cerebellum unusually soft.

Thorax.—Extensive adhesions, apparently of long standing, between pleuræ on both sides. Large mass of coagulated fibrin in right ventricle, extending into auricle and pulmonary arteries. The auricle and vessels terminating in it, were gorged with dark-coloured fluid blood. The left ventricle was empty, but auricle of that side contained dark coloured blood. There was a large fibrinous concretion at the root of the aorta. Lungs filled with blood, which flowed out freely on section, but these organs were otherwise healthy. There was nothing unusual in the large vessels and nerves of the neck.

Abdomen.—Recent adhesions between convolutions of smaller intestines. Vessels of mesentery distended with dark blood. Duodenum filled with whitish coloured matter. Mucous coat of smaller intestines softened, and ecchymosed in several parts. These appearances were also observed on the inner surface of stomach, which contained a quantity of greenish fluid. Transverse arch of colon very much contracted, and its descending arch and sigmoid flexure greatly distended with flatus. Liver rather pale. Gall bladder filled with dark bile, of the appearance of tar. Urinary bladder very much contracted, and contained no urine. Kidneys healthy.

Case 5.—James Robertson, aged 30, an idiot, subject to

epilepsy, was admitted on the forenoon of the 26th February, in the state of collapse, having previously vomited and purged a good deal. There was universal coldness of surface, the pulse was imperceptible at the wrist, and he had the peculiar characteristic expression of countenance and voice. The eyes were deeply reeded, the tongue moist and quite cold, and the hands and fingers reduced in size.—Warmth and other external stimulants, with the exhibition of cordials, failed to rouse the powers of life. The case being considered perfectly hopeless, and particularly as this person was of the most filthy description of idiots, he was removed, on the following day, to the ward appropriated for cases of bowel complaint. With the exception of heat to the extremities, and keeping him clean and otherwise comfortable, he received no particular attention, and no medicine was thought necessary. On the morning of the fourth day, having lain cold and pulseless at the wrist from the period of admission, he was found to have rallied. The pulse had become distinct, and there was a pleasant heat and moisture on the surface. From this time, he gradually improved, and is now in good health. He is much more rational and cleanly than before the attack; and the epileptic fits, which used to return daily, are greatly less frequent. He is now aware of their approach, several minutes before the paroxysm comes on, which he never was, before the attack of cholera.

The above is certainly one of the most extraordinary cases I have heard of. The man was actually once or twice reported by the nurse to be dead. He was seen by many medical gentlemen in town, and on accidentally mentioning the facts of the case to my friend Dr. Gibb, he suggested the likelihood of the recovery having been materially influenced, by the occurrence of an epileptic paroxysm, by which the blood would be powerfully determined to the surface. The explanation is certainly feasible. I have not been able, however, to ascertain the fact of his having had a fit.

The following is a similar case, and was also seen by a number of medical men. Taken together, they prove, to a certain extent, the utter inefficiency of the most powerful remedies in this complaint, of the nature of which, it must be owned, the profession knows very little. The principle of treatment is easily understood,—namely, to favour or bring about the return of the circulation to the surface, but how or by what means to effect this, is a point in practice of much more difficult attainment. All that can be said, is, that medical men are sometimes deceived in their predictions, when the powers of nature are occasionally seen to triumph over the

action of medicine, as in this and other hopeless complaints.

Case 6th.—Henry Macrae, aged 48, a blind, emaciated, deformed idiot; admitted at 10 o'clock on the evening of the 26th February. He had repeatedly purged since the morning, and vomited once or twice immediately before being brought in. The discharges by stool were of the colour and consistence of thick gruel. He had the choleric countenance and voice. The body was cold and clammy all over, and the pulse just perceptible at the wrist. He had a sinapism to the abdomen, the vapour bath applied, and a stimulant draught administered. He rallied towards the morning, and lay quiet, during the whole of the 27th. The vomiting had now ceased. Six grains of calomel with one of opium were given, and in three hours afterwards, a turpentine injection, by which he passed several greenish stools. Being very filthy in his habits, he was removed to the ward appropriated for bowel complaints. On the following day, the 29th, he again relapsed into the state of collapse. He continued for two days quite cold and without a pulse at the wrist. After the second day however reaction took place, and from this time he gradually improved, and is now in his usual health. During this period, it may be remarked, he received no particular treatment.

Case 7th.—The following is a very singular case. The person was affected with the choleric voice immediately or very soon after the purging began. Vomiting did not take place during the whole course of the disease. Notwithstanding the usual remedies he gradually sunk into the state of collapse, and died on the third day from admission.

Alex. M'Kinlay, aged 54, long affected with stricture of the urethra, and constitution broken up by previous habits of intemperance. Was an inmate of the hospital during the preceding six weeks. Had been admitted into the cholera ward at half-past 8 on the morning of the March, and was in his usual state of health up to yesterday evening, when he went to bed well. Affected with purging early in the morning. Had been at stool three or four times before six o'clock, and twice since. Face, pulse, and skin perfectly natural. Tone of voice gone, and says that, could he but speak clearly, he would feel quite well. Tongue with brown fur behind, clean and moist around edges and at tip. The bowel complaint was greatly mitigated by calomel and opium, opiate enemata, sinapism, &c. The pulse gradually got weaker, and in the course of two days became imperceptible

at the wrist. He then acquired the peculiar choleric countenance, became universally cold, and died 68 hours from the time of admission. This person remained perfectly sensible, till within an hour of his death. He complained of no pain from the commencement; neither had he any restlessness, and the thirst was not greater than natural.

Post mortem appearances. Lungs healthy. Fibrinous coagula in right auricle and ventricle. Venæ cavæ very full of dark-coloured fluid blood. Liver much larger than natural, and when cut into, black blood flowed out freely. Gall bladder very full of thick tenacious bile. Stomach contained a quantity of pale yellowish-coloured fluid. Mesenteric vessels full of dark fluid blood. Small intestines contained fluid of the same appearance as in stomach. Considerable quantity of bilious matter, in ascending and transverse arch of colon. Descending arch very vascular, and inner coat pulpy and thickened. Kidneys healthy. Ureters greatly enlarged. Urinary bladder not larger than natural. Firm stricture anterior to the membranous part of urethra. Head not opened.

These are some of the most interesting cases, which occurred during the prevalence of cholera in the Town's Hospital. I consider it unnecessary to lengthen this article by detailing more, but shall conclude by giving a short summary of the treatment of the whole, and a general view of the post mortem appearances, as observed in the inspection of upwards of twenty of the fatal cases.

The total number affected with the disease was 64. Of these, 35 were females, 29 males. Thirty-eight were taken from the back, and twenty-six from the front building. Forty died and twenty-four recovered. The duration of the disease, in the fatal cases, varied from four hours to five days, counting from the accession of the stage of collapse, or prostration of the vital powers. The most part of those who recovered were admitted in the first or premonitory stage, i. e. affected with vomiting and purging only. Many taken in under these circumstances sunk rapidly; on the other hand, some few without a pulse at the wrist, and cold all over the surface of the body, rallied, and ultimately recovered. Others, again, became affected with secondary fever, or in other words, a state of excitement, succeeding to previous depression or sinking, and died from effusion taking place on the brain, &c.

Of the whole number attacked, only one, an idiot, had not been previously affected with bowel complaint. In this instance, the person had taken her dinner of broth, &c., as usual. She was seized in an hour afterwards, with vomiting,

and died in the course of four hours. With one exception, the subject of the case last narrated, all were attacked with vomiting, prior to the accession of the stage of sinking.

In the premonitory, or previous stage of vomiting and purging, different modes of treatment were employed. The first indication was to allay the irritability of the stomach. This was generally effected by powerful counter-irritation, by means of mustard poultices, applied over the surface of the belly. In many cases, however, these failed, when small doses of the super-carbonate of soda had the desired effect; showing, of course, that this symptom was produced and kept up by acid generated in the stomach. Several well marked instances of this description occurred. So soon as the vomiting ceased, the following powder was given, and in a short time succeeded by small doses of calomel and opium, in the form of pills.

R. Pulv. Rhei. ʒ ss.
Sup. carb. Sodæ gr.x.
Pulv. zingib. gr.iii.

Instead of the powder, castor oil, with ten or fifteen drops of laudanum, was sometimes given, but being too nauseous was frequently rejected. This plan had generally the effect of bringing away bilious stools; but when this did not take place in the course of a few hours, an injection, with two table spoonfuls of castor oil, one of turpentine, and a quantity of gruel or warm water, was thrown into the rectum.

The formation and discharge of bilious evacuations, is one of the most favourable symptoms. The turpentine tends to excite the urinary secretion, which is always suppressed during the stage of collapse. When the urine, therefore, is discharged in any quantity, the case usually terminates well. In a few instances, bloodletting was had recourse to, but I cannot say with any well marked advantage. Emetics of mustard and salt were also employed, but, from the very trifling effect which was generally seen to follow, they were ultimately proscribed.

Several patients admitted in the stage of collapse, were bled, but I have good reason for thinking that such practice was rather injurious, than in any way beneficial. I may merely remark, that the subsequent sinking was always observed to be more rapid. Of course it is to be recollected, that most of the persons affected, were either old and infirm, or otherwise much debilitated, and very unlikely subjects to bear the detraction of blood. Mustard emetics were frequently used, on the principle that the excitement or agitation produced, might diffuse or force the blood to the different parts of the body, and thus favour the return of heat

to the surface. Their action, however, failed completely in this respect. I never saw any good produced by their use. The same may be said of tartar emetic, which was employed in smaller doses in two cases, on the well known fact that this medicine has a powerful influence over the functions of the liver, by exciting the discharge of bile both by vomiting and purging. It seemed sometimes to excite dangerous effects, from the incessant retching to which it gave rise. The effects of the hot air bath were altogether temporary. While the person was kept under its influence there was a general heat of the surface produced, but immediately on its being removed, or very soon after, the skin became covered with a cold clammy moisture. In a few instances, decidedly good effects were seen to follow the application of strong mustard cataplasms to the abdomen; as also the application of a plate of copper, heated by immersion in boiling water, to different parts of the same surface. In this way vesication was, in some cases, instantly produced. In Scott, the second case narrated, the effect of this practice was instantaneous. It also acted beneficially in the case of Catherine Higgins, and many others. In several cases the actual cautery was applied along the course of the spine, but without being followed by any very good result. I have much faith to place in frictions with turpentine, hartshorn, or any other stimulant, to the extremities and surface of the belly. In a number of instances, good effects were observed to follow this practice. Thus in the case first narrated, the heat was perfectly restored; and in another, who lay pulseless and cold, the pulse became distinct at the wrist, and the surface recovered its heat, by means of friction to the belly for the space of half an hour.

The stimulating draught did not appear to have a better effect, than any other liquid used for drink. It was seldom relished by the patients, their constant cry being for cold water. This is certainly not the least remarkable feature in the disease, for to the last the craving remains urgent, and that too when there is an universal coldness of the surface, and a tongue conveying to the touch a sensation like that of lead or ice.

Strychnine was employed in several instances, agreeably to the favourable report of a German author, who has lately written on the epidemic Cholera. The cases thus treated, were chiefly under the care of my friends Dr. Weir and Dr. Pagan, whose kind services, in the arduous and fatiguing duties necessarily required during the prevalence of the epidemic, I have gratefully to acknowledge.

The general *post mortem* appearances were the following:
Head.—Great congestion in the brain. Vessels of the pia mater minutely injected. Very general effusion under tunica arachnoidea, and thickening of that membrane. Effusion into the lateral ventricles, and at the base of the brain, also between the convolutions. In two cases, fluid venous-coloured blood in large arteries, particularly observable in basilar and its branches. Cortical substance of cerebrum unnaturally pale.

Chest.—Dark-coloured fluid blood in cavities of heart, not thick and grumous, but rather watery. Soft fibrinous coagula in right auricle and ventricle, and pulmonary arteries, sometimes filling these cavities completely; this was observable to a certain extent in every case, but once or twice the same were found in aorta and left side of heart, and once in both cavæ. Lungs usually, though not always, engorged with dark coloured blood, generally about the inferior part. Organic disease of lungs, in some of the old subjects, and very generally old adhesions.

Abdomen.—Peritoneal surface vascular, with more or less glutinous or tenacious matter on its surface, and different folds of small intestines slightly adhering together. In small intestines, more or less yellowish or greenish fluid. Mucous surface generally natural, but in one or two cases distinctly inflamed, particularly towards inferior extremity. Large intestines usually contracted, especially colon; in many cases empty, but sometimes containing feculent matter, and at other times, masses of white curdy matter floating in a large quantity of pale fluid. Stomach, with the exception of one or two cases, very much distended, partly with wind, but also with a great quantity of dark greenish matter, with particles of a substance similar to coagulated blood floating in it, and adhering to mucous surface. Mucous surface red and softened, sometimes distinctly inflamed or thickened. Rugæ well marked towards pylorus, and pyloric orifice very often contracted.* Liver very generally natural, or slightly enlarged. Gall bladder, in every case, full of dark coloured viscid bile. Urinary bladder firmly contracted, except in two or three cases, in which it contained urine. Spinal marrow was examined in one case only, and found natural. Sympathetic and par vagum examined in several cases in neck, and in one throughout their course, and found natural. In some of the cases the carotid arteries were found empty. The

* In some of the cases in town, I understand the stomach was found very greatly contracted, as if from violent spasmodic action during life, but this was never met with in any of the cases in the Town's Hospital.

brachial arteries contained fluid blood, while the radial were empty.

It is to be remarked, that the greater number of these cases lived for some hours after distinct reaction had taken place, and afterwards died of disease in the head, or engorgement of the lungs. In those cases which prove fatal during the stage of collapse, I should suppose, the *post mortem* appearance would be somewhat different.

George Street, 2d April, 1832.